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CHEMISTRY NMDCAT
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(UNIT-3)

TOPICS

✓ STATES OF MATTER

- Q.1 In a crystal the cations and anions are held together by
a. Vander Waal forces
b. Covalent bonds
c. Electrostatic force
d. All of these
- Q.2 Solid NaCl is a bad conductor of electricity because
a. The ions are not free to move
b. Solid NaCl is covalent
c. It does not have ions
d. In solid NaCl there are no free electrons
- Q.3 Which of the following is generally are conductors of electricity
a. Ionic solids
b. Covalent solids
c. Metallic solids
d. Both A and B
- Q.4 In the interior of the silica network every silicon atom is bonded tetrahedrally with four oxygen atoms and every oxygen atom is bonded to
a. Four silicon atoms
b. Two silicon atoms
c. One silicon atom
d. Three silicon atoms
- Q.5 The crystal of sugar has hydrogen bonding as well as covalent bonds so it belongs to
a. Covalent solid
b. Metallic solid
c. Ionic solid
d. Molecular solid
- Q.6 Which of the following is wrong?
a. Water has maximum density at 4°C
b. Molecular solids are relatively soft and volatile
c. In diamond carbon atom has sp^3 hybridization
d. Diamond is a good conductor of electricity
- Q.7 For a given mass with initial volume 'V', if pressure is reduced to one half and absolute temperature is increased two times. The volume will become
a. $2V^2$
b. $\frac{V}{4}$
c. $4V$
d. $6V$
- Q.8 CO_2 and SO_2 are both triatomic molecules but heat of vaporization of SO_2 is greater than CO_2 . The most appropriate reason for this is
a. Greater electronegative character of sulphur
b. Greater size of SO_2 molecule
c. SO_2 is polar and CO_2 is non-polar
d. SO_2 is more acidic than CO_2
- Q.9 The lattice energy is maximum for
a. KF
b. NaF
c. MgF_2
d. CaF_2
- Q.10 London dispersion forces are the only forces present among the
a. Molecules of waxy solid hydrocarbons
b. Molecules of NH_3
c. Molecules of alcohol in vapour phase
d. Molecules of noble gases at high temperature
- Q.11 At absolute zero, which one of the following statement is correct
a. All the gases become liquid
b. Molecular motion ceases
c. Water freezes
d. All the substances become solid
- Q.12 Heat of vaporization is minimum for
a. HF
b. HCl
c. HBr
d. HI
- Q.13 Which of the following is an example of molecular solid?
a. Aluminium nitride
b. Glucose



- Q.14** The molecules of which gas has highest average kinetic energy at 25°C
- a. CO₂
 - b. O₂
 - c. CH₄
 - d. Graphite
 - e. All have same

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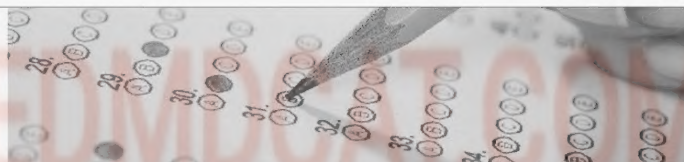
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- Q.15 Butter melts over a wide range of temperature. On this basis, it is classified as**
a. Molecular solid
b. Crystalline solid
c. Amorphous solid
d. Covalent solid
- Q.16 Vapour pressure depends upon**
a. Amount of liquid
b. Surface area
c. Temperature
d. Shape of container
- Q.17 Van der Waal's equation is reduced to general gas equation at**
a. High temperature and low pressure
b. Low temperature and high pressure
c. High temperature and high pressure
d. Low temperature and low pressure
- Q.18 If we provide very large amount of heat to a liquid, its boiling point**
a. Remains the same
b. Increases
c. Decreases
d. Varies abnormally
- Q.19 Copper metal can be drawn into wires because**
a. Copper atoms are held together by true covalent bonds
b. Copper has unique electronic configuration
c. Copper has variable valency
d. Copper atoms are held together by non-directional metallic bonds
- Q.20 Density of gas can be determined by**
a. $\frac{PV}{RT}$
b. $\frac{PM}{RT}$
c. $\frac{nRT}{PM}$
d. PVR
- Q.21 A pair of gases with equal root mean square velocity at 300K is**
a. SO_2 , O_2
b. N_2O , CO_2
c. CO , CO_2
d. NO , NO_2
- Q.22 Which of the followings does not match?**
a. H_2O and Na^+ → Ion dipole force
b. CH_3COCH_3 and CH_3COCH_3 → dipole-dipole force
c. HCl and Ar → Dipole-dipole force
d. $\text{C}_6\text{H}_{12}\text{O}_6$ and H_2O → Hydrogen bonding
- Q.23 Which order of strength of forces is correct**
a. Dipole-Dipole Interaction > Debye forces > London forces > Hydrogen Bonding
b. Hydrogen Bonding > Dipole-Dipole Interaction > London forces > Debye forces
c. Dipole-Dipole Interaction > Hydrogen Bonding > London forces > Debye forces
d. Hydrogen Bonding > Dipole-Dipole Interaction > Debye forces > London forces
- Q.24 Pressure cooker reduces cooking time because**
a. A large flame is used
b. Boiling point of water rises
c. Heat is uniformly distributed
d. Vapour pressure of liquid reduces
- Q.25 The least volatile compound among following is**
a. H_2O
b. $\text{C}_2\text{H}_5\text{OH}$
c. NH_3
d. HF
- Q.26 _____ is NOT a property of metallic solids**
a. Malleability
b. Ductility
c. Brittleness
d. Lustrous
- Q.27 One dm^3 of each of H_2 , He , N_2 and O_2 in separate vessels at STP, have number of molecules in each.**
a. 6.02×10^{23}
b. 6.02×10^{-22}
c. 2.68×10^{22}
d. 2.68×10^{23}
- Q.28 Moving from 4°C to 0°C , the density of H_2O**
a. Increases
b. Decreases
c. 1st increase than decrease
d. Remains same
- Q.29 A gas with lowest density**
a. NH_3
b. O_2
c. Ne
d. N_2



- Q.30** Which of the following gas shows more deviation from ideal behavior at given temperature and pressure?

 - N_2
 - CO_2
 - H_2
 - He

Q.31 The Coordination number of Na^+ ion in NaCl crystal

 - 4
 - 6
 - 8
 - 12

Q.32 Which one will show malleability and ductility

 - KCl
 - Sugar
 - BN
 - Cu

Q.33 Which solid does not contain true covalent bonds?

 - Silica
 - Cadmium iodide
 - Nickel
 - Diamond

Q.34 A correct comparison of boiling point is

 - $NH_3 > HF$
 - $HF > H_2O$
 - $H_2O > HF$
 - $NH_3 > H_2O$

Q.35 During the cleansing action, the detergents attracts stain particles with a force

 - Hydrogen bonding
 - London forces
 - Dipole-induced dipole force
 - Dipole-dipole force

Q.36 Which one of the following is a solid with lowest melting point

 - NaCl
 - I_2
 - $C_6H_{12}O_6$
 - Fe

Q.37 Mathematically Boyle's law is shown by all except

 - $PV = K$
 - $PT = K$
 - $P_1V_1 = P_2V_2$
 - $\frac{V_1}{V_2} = \frac{P_2}{P_1}$

Q.38 At $100^\circ C$ a gas has 1 atm pressure and $10dm^3$ volume, its volume at STP would be

 - $10dm^3$
 - More than $10dm^3$
 - Less than $10dm^3$
 - Can't be predicted

Q.39 By Charle's law, there will be a change in the volume of a given mass of gas by $1/273$ of its original volume at $0^\circ C$, if the temperature of gas is changed by

 - $10^\circ C$
 - $1^\circ C$
 - $100^\circ C$
 - $2^\circ C$

Q.40 When we plot a graph between pressure on X-axis and the product PV on Y-axis. A straight line parallel to the pressure axis is obtained. This straight line

 - Is called isotherm
 - Will help us to understand the non-ideal behaviour of gases
 - Can change its position by changing temperature
 - All of these are correct

Q.41 A real gas under what conditions will behave non ideally

	Temperature	Pressure
a.	Low	Low
c.	High	High
b.	High	Low
d.	Low	High

Q.42 H_2O is liquid at room temperature whereas H_2S is a gas because

 - H_2O is used for drinking, but H_2S has rotten egg smell
 - H_2O is neutral, H_2S is weak acid
 - H_2O is more abundant than H_2S
 - H_2O has hydrogen bonding but H_2S has no hydrogen bonding

Q.43 Boiling point of H_2O is higher than that of HF although fluorine is more electronegative than oxygen. It is due to

 - Atomic radius of fluorine is bigger than oxygen
 - H_2O is neutral HF is acidic nature
 - Geometry of H_2O is angular, but HF is linear
 - H_2O forms two hydrogen bonds per molecule but HF forms one



- Q.44** Vapour pressure of liquid is measured when liquid and the vapours are in equilibrium it means that
- Liquid and vapours have same value of kinetic energy
 - Liquid and vapours have same heat content
 - Rate of evaporation is equal to the rate of condensation
 - Rate of evaporation and condensation are different
- Q.45** The strongest H-bond is
- $\text{H}-\text{O}^{\delta-} \cdots \text{H}^{\delta+}-\text{O}$
 - $\text{H}-\text{F}^{\delta-} \cdots \text{H}^{\delta+}-\text{F}$
 - $\text{H}-\text{N}^{\delta-} \cdots \text{H}^{\delta+}-\text{N}$
 - $\text{H}-\text{Cl}^{\delta-} \cdots \text{H}^{\delta+}-\text{Cl}$
- Q.46** The density of gas 'X' is twice than that of 'Y' under same conditions. If molar mass of 'X' is 'M' then the molar mass of 'Y' is
- M/2
 - 2M
 - M
 - 4M
- Q.47** Water boils at 25°C if external pressure is
- 323 torr
 - 700 torr
 - 23.7 torr
 - 1489 torr
- Q.48** An example of covalent solid which has three dimensional network structure is
- Ice
 - Diamond
 - Sodium chloride
 - Graphite
- Q.49** The chloroform and acetone are miscible due to hydrogen bonding. The type of force between chloroform molecules is
- Hydrogen bonding
 - Dipole – dipole force
 - Van der Waals's force
 - Dipole induced dipole force
- Q.50** If 20 g of a gas at 1 atmosphere pressure is cooled from 273°C to 0°C at constant volume its pressure would become
- 0.25 atm
 - 1.5 atm
 - 1.0 atm
 - 0.5 atm

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Chemistry

C	11 B	21 B	31 B	41 D
A	12 B	22 C	32 D	42 D
C	13 B	23 D	33 C	43 D
B	14 D	24 B	34 C	44 B
D	15 C	25 A	35 B	45 B
D	16 C	26 C	36 B	46 A
C	17 A	27 C	37 B	47 C
C	18 A	28 B	38 C	48 B
C	19 D	29 A	39 B	49 B
A	20 B	30 B	40 D	50 D

Physics

D	11 B	21 B	31 B	41 D
B	12 C	22 D	32 A	42 B
B	13 D	23 B	33 D	43 C
B	14 C	24 B	34 D	44 B
B	15 C	25 B	35 C	45 C
C	16 A	26 B	36 C	46 C
C	17 B	27 D	37 B	47 A
D C	18 B	28 D	38 B	48 A
D	19 A	29 B	39 B	49 D
B	20 A	30 B	40 A	50 B

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